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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/781,644	02/20/2004	Won nam Kang	1751-301.CON	3455
6449	7590	10/13/2004	EXAMINER	
ROTHWELL, FIGG, ERNST & MANBECK, P.C. 1425 K STREET, N.W. SUITE 800 WASHINGTON, DC 20005			TALBOT, BRIAN K	
			ART UNIT	PAPER NUMBER
			1762	

DATE MAILED: 10/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/781,644

Applicant(s)

KANG ET AL.

Examiner

Brian K Talbot

Art Unit

1762

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 2/20/04 and 6/23/04.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☒ Certified copies of the priority documents have been received in Application No. 10/097,975.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

Art Unit: 1762

1. Claim 1 remains the only claim in the application.
2. The following Office Action is being written because the Declaration filed 6/23/04 crossed in the mail with the Office Action filed 6/30/04.

### ***Specification***

3. The disclosure is objected to because of the following informalities:

The term "fm" appears to be a typographical error. The term "EC" appears to be a translation error.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "EC" is unclear. Clarification is requested.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Finnemore et al. (6,514,557 B2).

Finnemore et al. (6,514,557 B2) teaches synthesis of superconducting magnesium diboride objects. Boron objects are reacted with magnesium vapor for a predetermined time and temperature to form a magnesium diboride object (see abstract). The boron object can be a wire, filament or boron film atop a substrate heated up to near 950°C and then cooled to form the MgB<sub>2</sub> object. The process to form the film is by pulsed laser deposition (Figs. 1a, 1b, col. 3, lines 35-47 and claims 9-11). The chamber for which the heating is performed is a tantalum tube on the inside and sealed with quartz on the outside and the heating is performed in an inert atmosphere (col. 2, lines 6-18). Finnemore et al. (6,514,557 B2) teaches sealing the boride film in an inert tube and sealing the inert tube in quartz (see Fig. 1b). The heating time varies dependent upon the thickness of the boron film and it less than 120 minutes. The substrate can be strontium titanate and the heating time can be as low as 30 minutes for a one micrometer boron film (col. 3, lines 35-45). Finnemore et al. (6,514,557 B2) fails to teach the substrate being monocrystalline strontium titanate.

While the Examiner acknowledges this fact, the Examiner has taken the position that one skilled in the art at the time the invention was made would have had a reasonable expectation of achieving similar results regardless of whether the substrate was monocrystalline or not. If Applicant disagrees, then Applicant is invited to supply a showing of unexpected results regarding the criticality of the crystalline state of the substrate. Upon such a showing, the Examiner would reconsider his position.

6. It is noted that Applicant filed a Declaration to overcome the rejection of record.

Applicant argue that the instant claim is a boron film and not a wire.

Finnemore et al. (6,514,557 B2) does teach a boron film heated in a magnesium atmosphere to form a MgB<sub>2</sub> film (see col. 3, lines 35-47).

Applicant argue that the instant claim requires a heating temperature of from 600-950°C for 10-60 minutes and that the references teach a higher temperature and a longer heating time which leads to degradation.

Finnemore et al. (6,514,557 B2) does teach the claimed temperature (near 950°C) and times as low as 30 minutes depending upon the thickness of the boron film being heated (col. 3, lines 35-47 and claims 9-11 and 18).

In conclusion, the advantages associated with the instant invention would be achieved by the prior art because all of the claimed process steps and limitation are met by the reference.

Art Unit: 1762

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian K Talbot whose telephone number is (571) 272-1428. The examiner can normally be reached on Monday-Friday 6AM-3PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive P Beck can be reached on (571) 272-1415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*B K Talbot 9/23/04*

Brian K Talbot  
Primary Examiner  
Art Unit 1762

BKT